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[54] **COLORED POLYMERIC DIELECTRIC PARTICLES AND METHOD OF MANUFACTURE**

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[58] **Field of Search** 525/369, 366, 525/379, 384; 526/212, 201; 528/502 A, 502 R

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,775,107 11/1973 Tulagin et al. 430/38

4,093,534 6/1978 Carter et al. 359/296
4,143,203 3/1979 Rigopoulos 428/407
4,285,801 8/1981 Chiang 204/299 R
4,298,448 11/1981 Muller et al. 204/299 R
4,643,953 2/1987 Gurguolo 428/520
4,655,897 4/1987 DiSanto et al. 204/299 R
4,803,260 2/1989 Nishina 528/487
4,891,286 1/1990 Gibson 430/38
5,061,766 10/1991 Yamashita 526/191

OTHER PUBLICATIONS

Pigmented Polymer Particles With Controlled Morphologies, American Chemical Society Symposium, Series 492, Chapter 25, pp. 405-421, Hou et al., 1992.

Electrophoretic Display Medium, Lehigh University, Dept. of Chemistry, pp. 1-13, Fowkes et al., 1989.

J. March, Advanced Organic Chemistry, 4th Ed. (1992) p. 1004 Wiley, New York.

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[57]

ABSTRACT

A process for forming dielectric particles includes admixing a vinyl halide monomer and a crosslinker in a liquid dispersion medium to form a first mixture. A second mixture of an initiator and a stabilizer is prepared and added to the first mixture to form a third mixture in which the monomer polymerizes to form white crystalline polymer particles which are sonified for uniformity. The particles may be stained by exposure to a dehydrohalogenation reagent and dispersed in an electrophoretic fluid for use in an electrophoretic display.

16 Claims, 1 Drawing Sheet